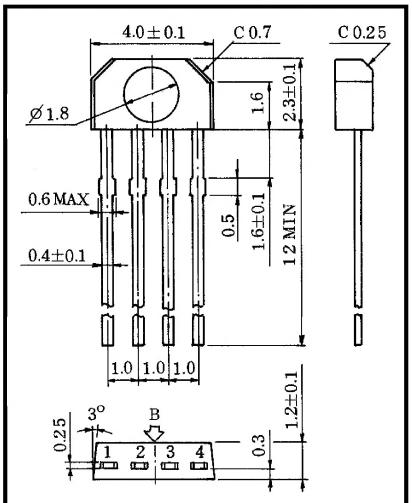
TOSHIBA HALL SENSOR GaAs ION IMPLANTED PLANAR TYPE

# THS119

HIGH STABILITY MOTOR CONTROL.
DIGITAL TACHOMETER.
CRANK SHAFT POSITION SENSOR.

- Excellent Temperature Characteristics.
- Wide Operating Temperature Range. ( ; −55~125°C)
- Excellent Output Voltage Linearity.

Unit in mm




1(+) − 3(−) (INPUT)
2(+) − 4(−) (OUTPUT)

| | |
|---|---|
| JEDEC | — |
| EIAJ | — |
| TOSHIBA | 10-4B1A |

Weight : 0.06g

MAXIMUM RATINGS (Ta = 25°C)

| CHARACTERISTIC | | SYMBOL | RATING | UNIT |
|---|---|---|---|---|
| Control Current | DC | $I_C$ | 10 | mA |
| | 1s | | 15 | |
| Power Dissipation | | $P_D$ | 150 | mW |
| Operating Temperature Range | | $T_{opr}$ | −55~125 | °C |
| Storage Temperature Range | | $T_{stg}$ | −55~150 | °C |

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| Internal Resistance (Input) | $R_d$ | $I_C$ = 5mA | 450 | — | 900 | Ω |
| Residual Voltage Ratio | $V_{HO}/V_H$ | $I_C$ = 5mA, B = 0 / B = 0.1T | — | — | ±10 | % |
| Hall Voltage (Note 1) | $V_H$ | $I_C$ = 5mA, B = 0.1T | 55 | — | 140 | mV |
| Temperature Coefficient (Note 2) | $V_{HT}$ | $I_C$ = 5mA, B = 0.1T<br>T1 = 25°C, Ta = 125°C | — | — | −0.06 | %/°C |
| Linearity (Note 3) | $\Delta K_H$ | $I_C$ = 5mA, B1 = 0.1T, B2 = 0.5T | — | — | 2 | % |
| Specific Sensitivity (Note 4) | K* | $I_C$ = 5mA, B = 0.1T | — | 27 | — | $\times 10^{-2}$/T |
| Internal Resistance (Output) | $R_{OUT}$ | $I_C$ = 5mA | 580 | — | 1350 | Ω |

Note 1 : $V_H = V_{HM} - V_{HO}$ ($V_{HM}$ is meter indication)

Note 2 : $V_{HT} = \frac{1}{V_{H(T1)}} \cdot \frac{V_{H(T2)} - V_{H(T1)}}{T2 - T1} \times 100\ (\%/°C)$

Note 3 : $\Delta K_H = \frac{K_{H(B2)} - K_{H(B1)}}{1/2\{K_{H(B1)} + K_{H(B2)}\}} \times 100(\%)$, $K_H = \frac{V_H}{I_C \cdot B}$

Note 4 : $K^* = V_H/(R_d \times I_C \times B) = K_H/R_d$

$V_{HO}$ : Residual Voltage

$K_H$ : Product Sensitivity

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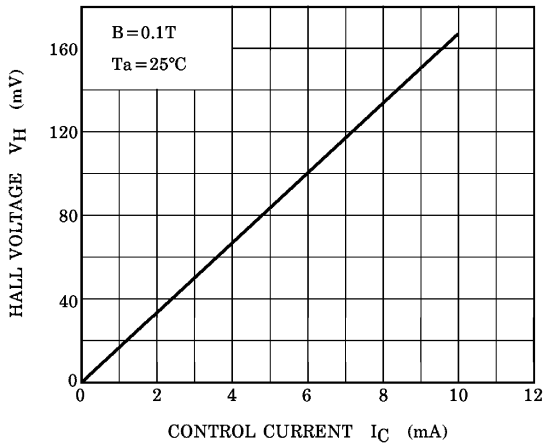
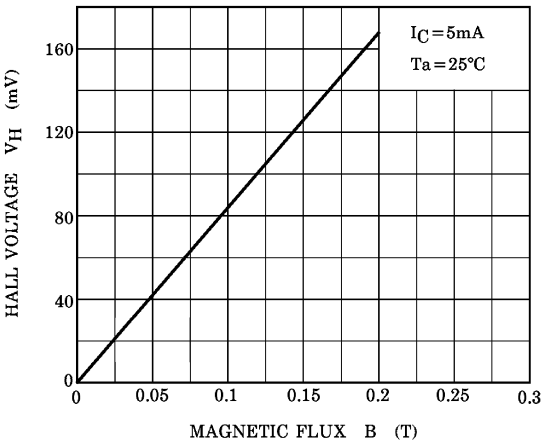
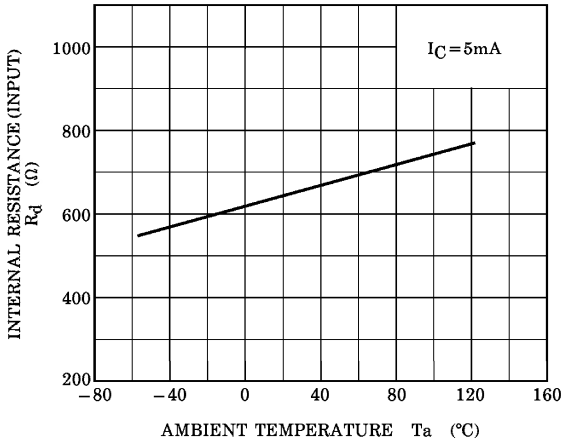
$V_H$ – $I_C$



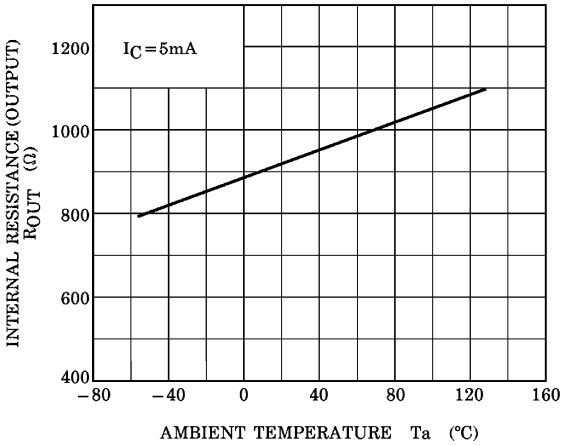

$V_H$ – B



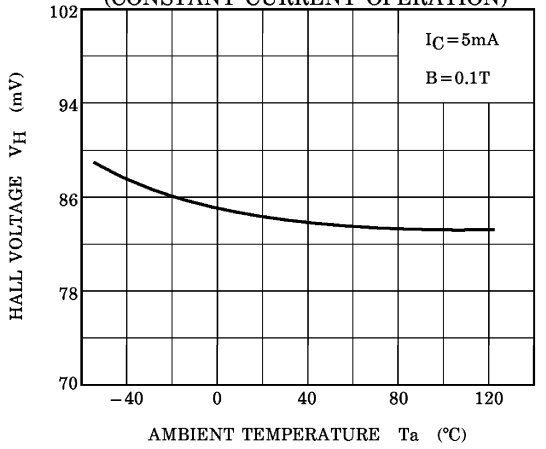

$R_d$ – Ta



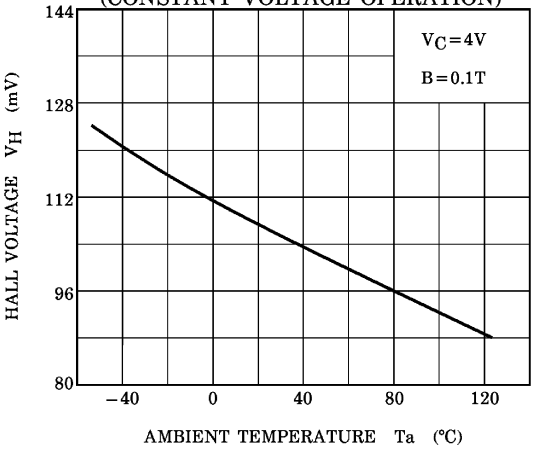

$R_{OUT}$ – Ta




$V_H$ – Ta
(CONSTANT CURRENT OPERATION)




$V_H$ – Ta
(CONSTANT VOLTAGE OPERATION)

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